



COLLEGE OF BUSINESS, PEACE, LEADERSHIP AND GOVERNANCE

NCIS 401: SYSTEMS ANALYSIS DESIGN AND IMPLEMENTATION

END OF FIRST SEMESTER EXAMINATIONS

NOVEMBER 2021

LECTURER: MR TIMOTHY MAKAMBWA

TIME: 5 HOURS

INSTRUCTIONS

Answer one question.

Start each question on a new page

Credit will be awarded for logical, systematic and neat presentations

QUESTION ONE

A1.

Mr. Hlatshwayo is the Principal of a large School. Currently the School has a Computer Network but he wants to have a new system which will allow the School to keep students personal records and test marks. He also wants to have a system which will let the students have the opportunity to use the computers to improve their learning in the COVID -19 era. He has invited Tanaka Maphosa, a systems analyst to design and create the new system.

- a) After Tanaka has designed the new system she will want to develop and test it .Describe testing strategies she could use. **(15 marks)**
- b) Tanaka will need to produce technical documentation. Describe the two types of technical documentation she will produce **(15 marks)**

A2.

The Herbert Chitepo General Hospital in Mutare, Zimbabwe is improving its Computer system to make it more efficient. They currently have separate systems for storing:

- Staff records
- Payroll records

One single document is required which will store all this data. A systems analyst is being employed to analyse the existing system and then design a new one.

- a) Describe three different methods the systems analyst could use to collect information about the existing system and describe where each could be used. **(20 marks)**
- b) After the system has been created it will need to be tested .Using the examples of a pay roll data , describe this testing and how any needed improvements would be identified as a result **(10 marks)**

A3.

- a) Why is interface design important? **(4 marks)**
- b) What are the objectives for input design? **(4 marks)**
- c) What do you understand by structured design technique? **(4 marks)**
- d) What is an abstraction in software design? **(4 marks)**
- e) 'A good system design will have strong cohesion and weak coupling'. Justify the above statement. **(4 Marks)**

A4.

Case–study

Correspondence courses

A college offers correspondence courses to students. Each course lasts 20 weeks and is based on a weekly study module and progress test. At the end of the course students sit an invigilated examination.

The college Registrar deals with enquiries and applications, and students applying who have sufficient qualifications are asked to register by completing and submitting an application form.

After approval by the Academic Director, the application form is returned to the Registrar who creates a student file. The Accounts department receive the application form and using information from the student file creates an invoice that is sent to the student. Payments made are registered on the invoice file. The first batch of student material and tests is issued from the library only to students who have paid fees (this information is taken from the invoice file).

Progress tests are marked by academic staff and the results, together with comments, are sent out with next week's study block. The library will only issue study material/progress tests when a student has returned test answers from the previous week. Draw a Data FLOW Diagram (DFD) of the Correspondence Courses. **(20 marks)**

QUESTION TWO

B1.

Rumbidzai Shumba is the Manager of a Publishing Company .The Company uses outdated record keeping system for storing details of the books they publish. Rumbidzai wants to introduce a more modern system. She has employed the services of a systems analyst, Chido Meredzwa, to investigate the current system and create a new one. Chido will use a variety of methods to collect information about the system.

- a) Describe two types of diagrams which Chido could use to record information about the system. **(10 marks)**
- b) Describe how the recording of information will help with the analysis of the current system
- c) Describe how Chido will identify the information requirements for a new system.**(10 marks)**
- d) Describe the factors which will influence Chido when designing the input and output layouts **(10 marks)**
- e) After the system has been developed it will need to be implemented .Discuss the four different methods which could be used **(20marks)**
- f) After the system has been implemented Chido will need to evaluate it .Describe the process of evaluation. **(10 marks)**

B2.

File conversion is an important part of the implementation process.

- a. Explain the purpose of file conversion. **(4 marks)**
- b. Discuss FOUR problems in the conversion process. **(8 marks)**
- c. Describe the steps in a typical file conversion. **(6 marks)**
- d. On completion of file conversion, what final checks should be made? **(2 marks)**

B3.

Example Case Study – Pizza Supreme

A large pizza business makes pizzas and sells them. The pizzas are manufactured and kept in cold storage for not more than two weeks.

The business is split into a number of functional units. There is Production Control, Manufacturing, Stores, Accounts, Sales, Shipping and Purchasing. Production Control are responsible for organising

which pizzas to produce in what order and in what quantity. They need to schedule the production of the pizzas according to the current and expected sales orders together with the number of pizzas already in Stores. Manufacturing take the raw materials from the Stores and manufacture pizzas returning the completed goods to the Stores. Accounts deal with the payments for the pizzas when delivered to the customer and the payment to the suppliers of the raw materials. Sales deal with customer orders whilst Purchasing organise the buying of raw material from suppliers. Shipping manage the packing and delivery of the goods to the customer with a delivery note.

When a sales order is received by sales they record what is being ordered and by whom. They also record the details of the expected date of delivery. Production Control access this information and make sure that, if required, pizzas are produced by Manufacturing and are ready in Stores for when the delivery needs to be made.

After the delivery is made Accounts make sure that the customer receives an invoice and that payment for the invoice is received at which time a receipt is issued. Purchasing look at the current stock of raw materials and by using current stock levels, supplier turnaround times and quantity to be ordered decide what needs to be ordered on a daily basis. Their aim is never to run out of an ingredient but to minimise the amount of raw material kept in stock. Draw the Data Flow Diagram (DFD).
(20 marks)

QUESTION THREE

C1.

Mtshabezi High School has recently been formed by the amalgamation of six smaller schools. The Administrator wants to have a modern ICT system to administer student's records. This system will need to be ready when students attend a single campus. She has decided to employ a system analyst to look at the existing computer systems in the six schools and recommend a new system. She wants to keep the student records on file which will include the following:

- The student ID number of 12 digits
- Test scores
- Their Form Classes or groups

The systems analyst has completed the collection of information about the existing system. After this has been done, he will use this information to complete the Analysis stage of the Systems Development Life Cycle (SDLC).

- a) Describe the activities he will need to carry out this. **(10 marks)**
- b) At the Design phase of the SDLC he will need to decide on validation checks to be used. Describe three validation checks which could be used with the Student ID number **(15 marks)**
- c) The new system has been designed and will now be tested. Explain why live data is used to test the new system **(5 marks)**
- d) Compare and contrast different methods which can be used to implement this new system. For each method give reasons why it may, or may not be used for this School. **(20 marks)**
- e) After the system has been implemented it will be evaluated. Describe the methods that the systems analyst will use to evaluate how easy the system is to use. **(10 marks)**

C2.

- a) What is the main objective of the Feasibility Study? **(4 marks)**
- b) List and briefly describe the four areas of feasibility. **(6 marks)**
- c) What are the major issues that should be raised when the system designer design the system process? **(4 marks)**
- d) Distinguish between logical and physical design phase. What are the processes that take place during both phases? **(6 marks)**

C3

Bebop Records is a mail-order company that distributes CDs and tapes at discount price to record-club members. When an order processing clerk receives an order form, he or she verifies that the sender is a club member by checking the Member file. If the sender is not a member, the clerk returns the order along with a membership application form. If the customer is a member, the clerk verifies the order item data by checking the Item file. Then the clerk enters the order data and saves it to the Daily Orders file. The clerk also prints an invoice and shipping list for each order, which are forwarded to Order Fulfillment.

Show the above case in a DFD clearly showing the external entities, data flows, data stores and the processes. **(20 marks)**

END OF EXAMINATION
